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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,941	03/23/2001	Stephen Christopher Kitson	30001065	6953

7590 02/04/2005
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EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,941

Applicant(s)

KITSON ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-20 and 22-33 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) 15-20, 22, 23 and 30-33 ~~is/are~~ withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-14 and 24-29 ~~is/are~~ rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 01, 2004 has been entered.

Accordingly, claims 10 and 21 were cancelled. Currently, claims 1-9, 11-20, 22-33 are pending in this application. Of these claims, claims 11-20, 22, 23 and 30-33 were previously withdrawn from consideration.

Terminal Disclaimer

2. The terminal disclaimer filed on December 02, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of prior Patent No. 6,798,481 and of any patent granted on copending application 09/816,942 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

3. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

In addition, in the telephone interview with Paul D. Greeley on 01/28/2005, Attorney for Applicant, the Examiner indicated that the Office has not received the IDS filed on April 24, 2004.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 4 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsunaga et al. (Matsugana, USPN 5,109,293).

Re claim 1, as shown in Figs. 1 and 2A, Matsugana discloses a liquid crystal device comprising:

a first cell wall 11 and a second cell wall 12 enclosing a layer of liquid crystal material;

electrodes 13 for applying an electric field across at least some of said liquid crystal material; and

a surface alignment structure (as 14 in Fig. 2A and 22 in Fig. 1) on the inner surface of at least said first cell wall providing a single desired alignment in direction 24 to a liquid crystal director of liquid crystal molecules 23 as shown in Fig. 1,

wherein said surface alignment structure comprises a two dimensional array of alignment posts 22 which are at least one of shaped and orientated to produce the desired alignment in the direction 24 as shown in Fig. 1.

Re claim 4, as shown in Fig. 1, at least part of a side wall of said posts 22 is tilted with respect to the normal to the plane of the first cell wall 21.

Re claim 11, as shown in Fig. 1, Matsunaga discloses a cell wall for use in manufacturing a liquid crystal comprising a wall 21 and said alignment structure 22 on one surface thereof for providing a single desired alignment (direction 24) to said liquid crystal director.

Finally, re claims 12-14, as to the product-by-process limitation recited in claims 12-14, it has been recognized that "Even through product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process". *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

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6. Claims 1, 2, 4, 9, 11-14 and 24-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Samant et al. (Samant, USPN 5,109,293).

Re claim 1, as shown in Figs. 1 and 3A, Samant discloses a liquid crystal device comprising:

a first cell wall and a second cell wall enclosing a layer of liquid crystal material (col. 8, lines 14-25);

electrodes for applying an electric field across at least some of said liquid crystal material (col. 1, lines 24-57); and

a surface alignment structure on the inner surface of at least said first cell wall 12 providing a single desired alignment to a liquid crystal director (col. 2, lines 43-58),

wherein said surface alignment structure comprises a two dimensional array of alignment posts 14 which are at least one of shaped and orientated to produce the desired alignment (col. 4, lines 27-34).

Re claim 2, said posts have a height in the range of about 2 to 10 micrometer (col. 5, lines 15-20).

Re claim 4, at least part of a side wall of said posts is tilted with respect to the normal to the plane of the first cell wall (col. 9, lines 14-16).

Re claim 9, said posts 14 are of different shape in different regions of the device (col. 4, lines 27-34).

Re claims 24-27, said alignment posts have a square cross section, or a round cross section, or a triangular cross section, or an oval cross section (col. 4, lines 27-34).

Re claim 28, said liquid crystal material is a nematic liquid crystal (32-36).

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Re claim 29, the device of Samant further comprises one or more spacer posts, said one or more spacer posts spanning the entire cell (col. 4, lines 41-63 and col. 5, lines 15-20).

Re claim 11, as shown in Fig. 1, Samant discloses a cell wall for use in manufacturing a liquid crystal comprising a wall 12 and said alignment structure 14 on one surface thereof for providing a single desired alignment to said liquid crystal director (col. 2, lines 43-59).

Finally, re claims 12-14, as to the product-by-process limitation recited in claims 12-14, it has been recognized that "Even through product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process". *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 2, 3, 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (Matsugana, USPN 5,109,293) in view of Bryan-Brown et al. (Bryan-Brown, USPN 5,917,570).

Matsugana discloses a liquid crystal device that is basically the same as that recited in claims 2, 3, 5, 6 and 8 except for the dimensions of the posts.

Re claims 2, 3 and 8, Bryan-Brown discloses a liquid crystal device comprising the posts (small pillars) formed of a photoresist material and having a height of 1-3 micrometer for assisting in correct spacing apart of the cell walls and also for a barrier to liquid crystal material flow when the cell is flexed (col. 2, lines 36-43).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the alignment posts having a proper height as taught by Bryan-Brown for assisting in correct spacing apart of the cell walls and also for a barrier to liquid crystal material flow when the cell is flexed (col. 2, lines 36-43).

Re claims 5 and 6, Bryan-Brown discloses a method to create a profiled surface structure using a bigrating mask consisting of chrome rectangle 0.7x0.8 micrometer separated by 0.5 micrometer gaps for inducing low pretilt (col. 5, lines 18-41).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the alignment posts having a width of 0.7 micrometer and spaced 0.5 micrometer from each other as taught by Bryan-Brown for inducing low pretilt (col. 5, lines 42-44).

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9. Claims 3, 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samant et al. (Samant, USPN 5,109,293) in view of Bryan-Brown et al. (Bryan-Brown, USPN 5,917,570).

Samant discloses a liquid crystal device that is basically the same as that recited in claims 3, 5, 6 and 8 except for the dimensions of the posts.

Re claims 3 and 8, Bryan-Brown discloses a liquid crystal device comprising the posts (small pillars) formed of a photoresist material and having a height of 1-3 micrometer for assisting in correct spacing apart of the cell walls and also for a barrier to liquid crystal material flow when the cell is flexed (col. 2, lines 36-43).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the alignment posts having a proper height as taught by Bryan-Brown for assisting in correct spacing apart of the cell walls and also for a barrier to liquid crystal material flow when the cell is flexed (col. 2, lines 36-43).

Re claims 5 and 6, Bryan-Brown discloses a method to create a profiled surface structure using a bigrating mask consisting of chrome rectangle 0.7x0.8 micrometer separated by 0.5 micrometer gaps for inducing low pretilt (col. 5, lines 18-41).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the alignment posts having a width of 0.7 micrometer and spaced 0.5 micrometer from each other as taught by Bryan-Brown for inducing low pretilt (col. 5, lines 42-44).

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (Matsugana, USPN 5,109,293) in view of JP 5-249463 (JP'463).

Matsugana discloses a liquid crystal device that is basically the same as that recited in claim 7 except for the liquid crystal material containing a surfactant.

JP'463 discloses that a surfactant is added into the liquid crystal to facilitate high-grade display without generating crosstalks (Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal device of Matsugana with the teaching of JP'463 by adding a surfactant into the liquid crystal material so as to facilitate high-grade display without generating crosstalks (Abstract).

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samant et al. (Samant, USPN 5,109,293) in view of JP 5-249463 (JP'463).

Samant discloses a liquid crystal device that is basically the same as that recited in claim 7 except for the liquid crystal material containing a surfactant.

JP'463 discloses that a surfactant is added into the liquid crystal to facilitate high-grade display without generating crosstalks (Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal device of Samant with the teaching of JP'463 by adding a surfactant into the liquid crystal material so as to facilitate high-grade display without generating crosstalks (Abstract).

12. Claims 9 and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (Matsugana, USPN 5,109,293) in view of Samant et al. (Samant, USPN 5,109,293).

Matsugana discloses a liquid crystal device that is basically the same as that recited in claims 9 and 24-29 except for the posts having different shapes.

As shown in Fig. 1, Samant discloses a surface alignment structure comprising two dimensional array of alignment posts 14 for easy control over the pretilt of the liquid crystal molecules in producing homeotropic liquid crystal displays (col. 8, lines 31-36).

Re claim 9, said posts 14 are of different shape in different regions of the device (col. 4, lines 27-34).

Re claims 24-27, said alignment posts have a square cross section, or a round cross section, or a triangular cross section, or an oval cross section (col. 4, lines 27-34).

Re claim 28, said liquid crystal material is a nematic liquid crystal (32-36).

Re claim 29, the device of Samant further comprises one or more spacer posts, said one or more spacer posts spanning the entire cell (col. 4, lines 41-63 and col. 5, lines 15-20).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the alignment posts of Matsugana as taught by Samant for easy control over the pretilt of the liquid crystal molecules in producing homeotropic liquid crystal displays (col. 8, lines 31-36).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

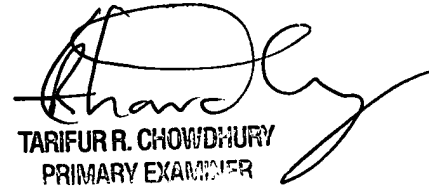
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



01/27/2005



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER